

**OLYMPUS®**

Your Vision, Our Future

Handheld XRF

**DELTA Series**

## DELTA Handheld XRF for Toxic Metals Screening



Fast, Nondestructive Solution for  
Global Consumer Safety Regulations

# The DELTA Handheld XRF

## for Consumer Safety

The DELTA Consumer Safety Handheld XRF is a fast, accurate, and cost effective handheld X-ray fluorescence (XRF) regulatory compliance screening tool. This Consumer Goods and RoHS Analyzer is optimized for analysis of lead (Pb), cadmium (Cd), arsenic (As), mercury

(Hg), chromium (Cr) and other toxic elements in metals, plastic, and mixed materials. They provide the ability to test at manufacturing sites and to screen imported toys, jewelry, clothing, electronics and other consumer products before they become a problem.



### Comply with Global Regulations

#### Quick Risk Management Solution

DELTA Consumer Safety Handheld XRF analyzers are used for rapid product and component screening to monitor compliance with CPSIA, RoHS, WEEE, EN71-3 and other regulations. They provide fast, accurate answers to take action.

Already new elements, including nickel (Ni), are being considered for addition to the existing regulation timelines. The DELTA measures these and more too. Olympus follows the development of global regulations closely to ensure our analyzers and technology stay ahead of the regulatory requirements.

### Worldwide Restricted Hazardous Substance Regulations and Testing Methods

- EU RoHS Directive (2011/65/EU)
  - EU WEEE Directive (2002/96/EC)
  - China RoHS Directive (RCPCEP)
  - Japan RoHS
  - Korean RoHS Directive
- USA CPSIA (HR4040)
  - USA Halogen Free Directive
  - California Proposition 65
  - USA ASTM F2617-08
  - USA ASTM F963
- USA CPSC-CH-E1002-08 SOP
  - USA EPA Method 6200
  - USA NIOSH Method 7702
  - USA OSHA Methods OSSA1-OSSA

## Regulatory Compliance Concentration Limits



Element / Regulation	RoHS/ WEEE	Consumer/ CPSIA	Halogen-Free
Cd	<100 ppm	N/A	N/A
Cr	Cr <sup>6+</sup> <1000 ppm	N/A	N/A
Hg	<1000 ppm	N/A	N/A
Pb	<1000 ppm	<100 ppm substrate <90 ppm surface	N/A
Br	PBB PBDE <1000 ppm	N/A	<900 ppm
Cl	N/A	N/A	<900 ppm
Br + Cl	N/A	N/A	<1500 ppm



### DELTA XRF Performance: Staying Ahead of Requirements

#### Lower Limits of Detection (LODs) through more advanced technology

DELTA handheld XRF analyzers offer accurate, sensitive analysis with easy to use reporting software in an ergonomic and dependable package. It offers detection of limits that well within typical regulatory limits in most materials.

#### 40kV DELTA Premium Limits of Detection in PPM

Element	PE	PVC	Al	Brass (Cu/Zn)	Solder	Steel
Cl	30-60*	-	-	-	-	-
Cr	10-30	20-50	50-80	60-80	800-1000	-
Hg	1-2	2-4	2-5		50-70	60-90
As	1-2	2-4	-	-	-	-
Br	1-2	2-4	-	-	-	-
Pb	1-2	2-4	2-5	40-70	50-70	80-200
Cd	8-12	15-20	7-10	40-60	80-150	30-50
Sb	10-20	20-30	10-20	60-100	300-500	150-300

The DELTA-50 is our top of the line handheld XRF analyzer, incorporating a large area premium silicon drift detector (SDD) and a 50 KV Au/Ta anode X-ray tube. This combination offers improved limits of detection for Cr, Cd, and Sb to bolster confidence in your screening program.

#### 50kV DELTA-50 Premium Limits of Detection in PPM

Element	PE	PVC	Al	Brass (Cu/Zn)	Solder	Steel
Cl	30-60*	-	-	-	-	-
Cr	5-10	8-15	35-50	40-60	200-300	-
Hg	1-2	2-4	2-5	80-250	50-70	30-50
As	1-2	2-4	-	-	-	-
Br	1-2	2-4	-	-	-	-
Pb	1-2	2-4	2-5	35-50	35-50	60-200
Cd	2-5	2-5	2-5	7-10	80-120	7-10
Sb	5-10	5-10	10-20	15-25	300-500	15-25

LOD testing times use 120sec/beam  
DELTA LODs assume multi-beam RoHS calibration is used (2 beam/sample)  
LODs assume ideal sample types; performance on real samples may vary

\* Requires Halogen Free Mode Software  
Notes apply for both tables



# DELTA Consumer Safety Series

In 3 Easy Steps:

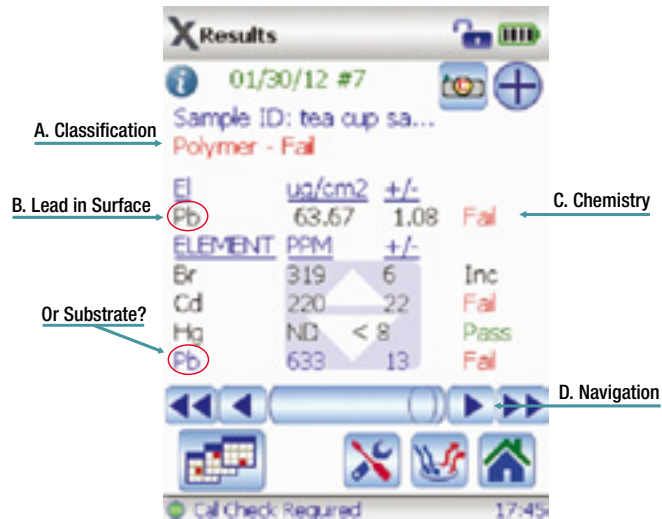


## 1. Point and Shoot

### Pinpoint the Right Target:

The DELTA can isolate individual components on electronics or consumer products using its integrated CMOS camera and small spot collimator.

Use of 3 mm diameter X-ray spot collimation is available at the push of a button. An on-screen video display indicates analysis spot, and archives sample images to memory for use in comprehensive test reports.



## 2. View Results

### A. Classification

- The smart software will determine if it is Alloy, Mixed or Polymer
- Or it can be set by the user

### B. Lead in Surface or Substrate?

- If "Pb" on top turns blue, lead is in the Surface
- If "Pb" at bottom turns blue, lead is in the Substrate

### C. Chemistry

- Calculated results with +/- precision
- Pass/Fail Results as compared to the preset Action levels for each element
- Action level can be set by user

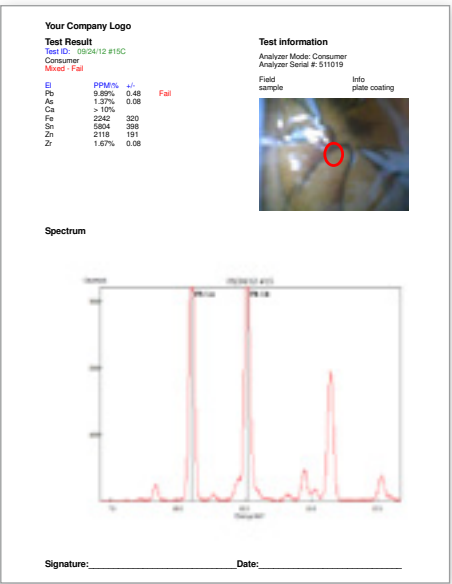
### D. Results Navigation

## 3. Generate Report

### Result Interpretation & Certificates

The DELTA PC reporting software facilitates immediate report generation, including analysis results, qualitative sample information, spectral information, and sample image.

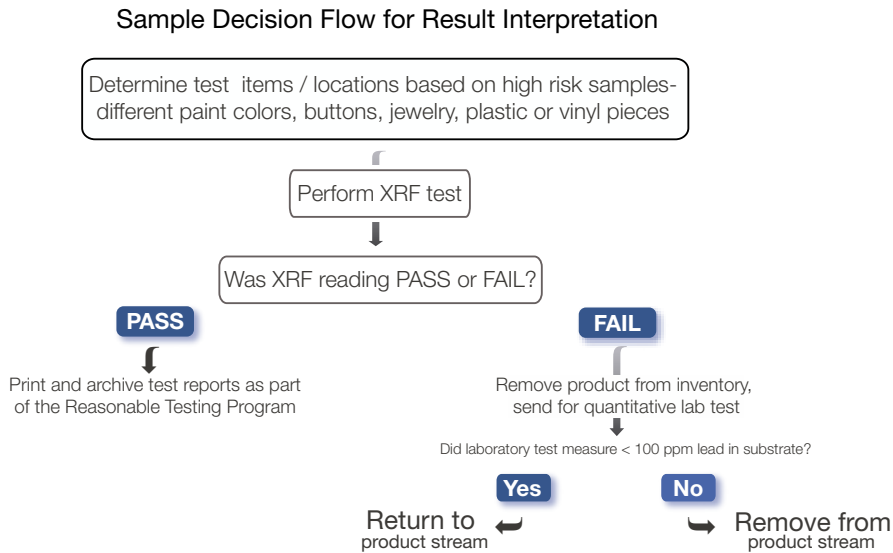
Traceable documentation makes the DELTA the ideal tool for your Reasonable Testing Program (RTP).



## For Results you Can Count On

The DELTA automatically determines sample type (polymer, alloy or mixed) and optimizes measurement conditions accordingly. It recognizes non-homogeneous ("mixed")

samples to alert the operator, which is critical for error-free operation. The DELTA also distinguishes Pb in the surface or in the substrate.

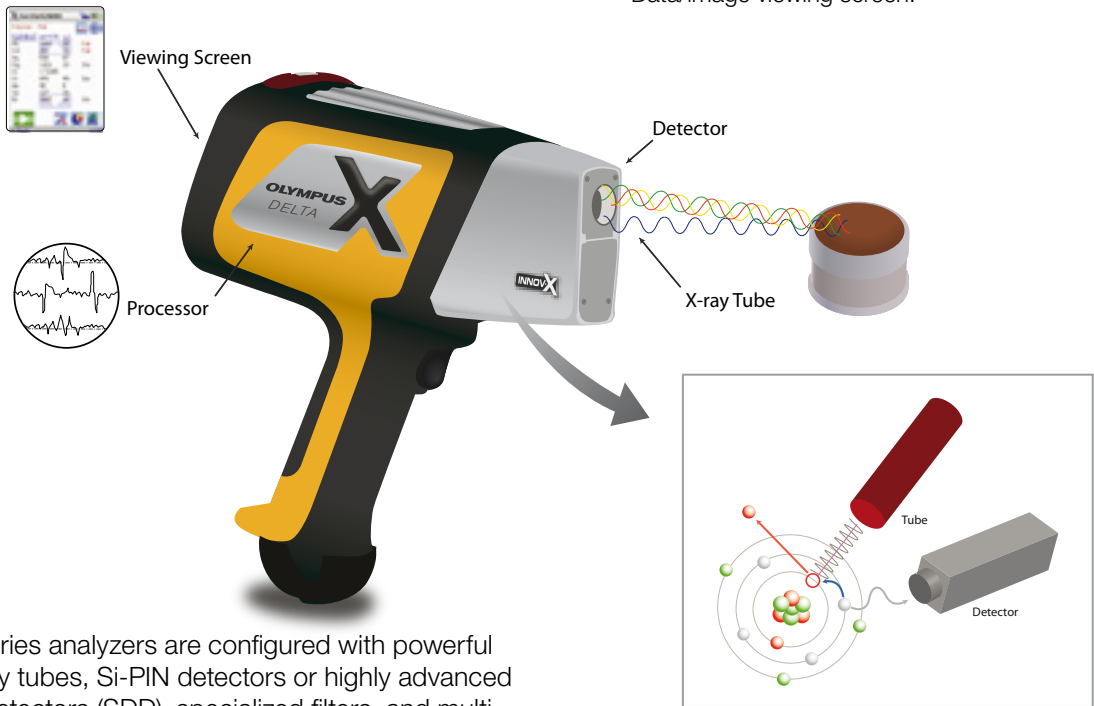


## Portable XRF Screening Technology

The DELTA brings the power and flexibility of handheld X-ray fluorescence spectrometry to the field. Ruggedized and ultra portable, this dramatically fast 24/7 technology provides accelerated testing times, allowing for hundreds more tests to be conducted per day with analytical confidence.

DELTA Handheld XRF spectrometers have four key components:

- Detector (Si-PIN or SDD)
- Excitation source (X-ray tube)
- Data collection/processing unit, and
- Data/image viewing screen.



The DELTA series analyzers are configured with powerful miniature X-ray tubes, Si-PIN detectors or highly advanced Silicon Drift Detectors (SDD), specialized filters, and multi-beam optimization for the ultimate in XRF field analysis.

# The DELTA Series

## Everything You Need in Handheld XRF with State-of-the-Art Innovation

The New Generation DELTA Handheld XRF Analyzers are ergonomically advanced with a forward looking design incorporating the latest in electronics, components, and software technology.



### DELTA Professional

The DELTA Professional with a 40kV tube and SDD detector is the best value solution from Olympus for handheld XRF analyzers. It provides superior performance in speed, LODs, and elemental range.



### DELTA Premium

The DELTA Premium with advanced 40kV tube and large area SDD detector is best for ultra quick, analytically demanding applications, such as trace levels and light elements in low alloy steel, soil, mining, and metallurgical samples.

Some DELTA Premium models can be configured with a 50kV tube to optimize LODs for high-Z and challenging elements, such as Ag, Cd, Sn, Ba, Cr, Sb, Te, and Rare Earth Elements (REEs).

### DELTA Classic Plus

The DELTA Classic Plus with a 40kV tube and Si-PIN detector is ideal for simple applications. It provides quick ID, screening, sorting, and elemental and metals analysis.

The newly available DELTA X-act Count Technology can provide even better sensitivity and precision in faster time for more materials than before. Throughput is increased with the same or better precision in half the time for most elements.

Features and Benefits
Powerful 4W X-ray tube, 200 $\mu$ A current (max), optimized beam settings
Tight geometry for exceptional LODs and high analysis throughput
Large-Area SDD and customized X-ray tube options for exceptional sensitivity and precision for more elements and materials
Patent-pending automatic barometric pressure correction that adjusts calibration as needed for more accurate analysis of light element.
Lightning-fast data acquisition for faster testing time
Floating Point Processor: Provides more calculations in less time, and leverages more advanced calibration algorithms
Integrated Bluetooth® for data input and output available in most countries
Integrated wide area heat sinks throughout the DELTA body for high power use in extreme temperatures
Analysis indicator lights visible from 360° to help ensure safe use
Advanced colortouch LCD screen for clarity, brightness, responsiveness, and energy efficiency for indoor/outdoor use
Accelerometer technology puts the unit into sleep mode to save energy when not in use; logs impacts for tool management
DELTA PC Software for enhanced data analysis, calibration modeling, and optional closed beam workstation operation
USB interface port for high-speed downloads and seamless PC control
Ergonomic rubberized handle for enhanced grip
Docking Station and Hot Swap Batteries



The unique DELTA Docking Station frees you from having to power down the analyzer. The station charges the analyzer battery and a spare, and performs periodic calibration checks. DELTAs can be operated 24/7 in the field with hot swap battery replacement.

## Optional DELTA Field Accessories

Options and a variety of accessories are available to take full advantage of the DELTA Handheld XRF on location.

From portable bench-top setups for small samples to an auto-focus and zoom camera for sample imaging and archiving to small spot collimation for small sample area analysis to wireless printing for documenting data records on site to automated barcode scanner IDs with analysis, these options and accessories help optimize the ease and efficiency of screening and analyzing large volumes of samples where and when you needed.



### 1. DELTA Portable Workstation

Portable workstation with integrated safety-lock shielding is convenient for small objects; a PC is connected for remote control of this closed-beam DELTA set-up.



### 2. DELTA Holster

The holster keeps the DELTA by your side and within easy reach.

### 3. DELTA 50kV Safety Shield

The safety shield provides additional shielding from open beam radiation for field use of the full 50kV power of the DELTA.



### 4. DELTA Barcode Reader

The DELTA Analyzer can be configured to operate with a bar code scanner for automatic input of data into test information fields with the scanned ID.

### 5. Bluetooth® Printer

The DELTA Analyzer can be configured to operate with a portable printer via Bluetooth® communication to have documented records of results on location.



### 6. DELTA Camera Collimator

The DELTA Analyzer can be configured with a VGA Camera with Auto-Focus and Zoom for sample imaging and archiving and a Collimator allowing for small spot (3 mm diameter) focus in addition to the standard spot size.

DELTA accessories and options on this page are optional and can be coupled with an initial purchase or at any time after.

## The DELTA Line

The DELTA series handheld XRF analyzers are configured with powerful miniature X-ray tubes, Si-PIN, or highly advanced Silicon Drift Detector (SDD) detection, specialized filters, and multi-beam optimization for the ultimate in XRF field analysis.

### DELTA Specifications\*

	DELTA Premium	DELTA Professional	DELTA Classic Plus
Excitation Source	4W Rh, Au, or Ta anode (per application) X-ray tube	4W Ag, Rh, Au, or Ta anode (per application) X-ray tube	4W Au or Ta anode X-ray tube
Detector	Large-Area Silicon Drift Detector	Silicon Drift Detector	Si-PIN Diode Detector
Analytical Range	Alloy and Mining: Mg and up for Rh/Ag and Al and up for Ta/Au; Soil: P and higher		Alloy and Mining: Ti and higher; Soil: P and higher
Weight	1.5 kg (3.25 lbs) without battery		
Dimensions	260 × 240 × 90 mm (10.25 × 9.5 × 3.5 in.)		
Environmental Temp Range	-10 °C to 50 °C (14 °F to 122 °F)		
Processing Electronics	530 MHz CPU with integrated FPU with 128 MB RAM; Proprietary Olympus Digital Pulse Processor (DPP)		
Smart Electronics	Accelerometer; Barometer for atmosphere pressure correction of light elements' measurements		
Power	Rechargeable Li-ion battery; Hot-swap maintains analyzer power during battery charge		
Data Display	32 bit Color QVGA resolution, Blanview transmissive backlit touchscreen; 57 × 73 mm (2.25 × 2.9 in.)		
Data Storage	1 GB microSD (stores ~75,000 readings)		
Data Transfer	USB, Bluetooth®		

### Standard Accessories

- Waterproof Carrying Case
- Two (2) Li-ion Batteries
- Electronic User Manual and User Interface Guide and Printed Quick Start Guide
- Docking Station
- Mini USB Cable
- 316 Stainless Steel Calibration Check Reference Coin
- Ten (10) Spare Windows
- Integrated Wrist Strap
- DELTA PC Software
- Factory Authorized Training and Support

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